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AUTHOR Holliway, David R.

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ABSTRACT

This study addressed whether "reading-as-the-reader" can improve fifth- and ninth-grade students' abilities to compose descriptive writing consistent with their readers' informational needs. There were 206 participants: 154 writers (78 fifth graders and 76 ninth graders) and 52 ninth-grade readers. The study adapted the referential communication design from Traxler and Gernsbacher (1992 and 1993) to investigate whether young writers can benefit from a perspective-taking task as they compose and revise their descriptions of tangrams (Chinese geometric puzzles) over three separate writing sessions. Three perspective-taking conditions were contrasted: a numerical feedback condition, a "rating other" description condition, and a "reading-as-the-reader" condition. Readers' correct description-to-tangram matches made for each session served as the dependent measure. Two analysis of variance (ANOVA) were conducted; the first contrasting sessions one and two, the second contrasting sessions one and three. The first analysis revealed a main effect of session. The second analysis revealed a significant session-by-task interaction. Post hoc analyses of the interaction (Tukey's HSD) established that only the read-as-the-reader group showed a significant gain between sessions one and three. A discourse analysis of the descriptions revealed that students used an "object-centered" discourse strategy that began with an analogy followed by geometric shape and spatial characterizations. The study offers evidence that "reading-as-the-reader" can help younger writers in considering the multiple functions of writing and the reciprocity between writers, readers, and written text. (Contains 36 references, 4 tables, and 2 figures of data.) (Author/RS)

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It looks like a Goose: Composing for the Informational Needs of Readers

David R. Holliway

University of Washington

American Educational Research Association,

Writing and Literacies Special Interest Group,

April 24, 2000,

New Orleans, LA.

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Abstract

It looks like a Goose: Composing for the Informational Needs of Readers

This study addressed this question: Can "reading-as-the-reader" improve fifth- and ninth-grade students' ability to compose descriptive writing consistent with their readers' informational needs? There were 206 participants: 154 writers (78 fifth-graders and 76 ninth-graders) and 52 ninth-grade readers. The study adapted the referential communication design from Traxler and Gernsbacher (1992 and 1993) to investigate whether young writers can benefit from a perspective-taking task as they compose and revise their descriptions of tangrams over three separate writing sessions. Three perspective-taking conditions were contrasted: a numerical feedback condition, a "rating other" description condition, and a "reading-as-the-reader" condition. Readers' correct description-to-tangram matches made for each session served as the dependent measure. Two analysis of variance (ANOVA) were conducted: the first contrasting sessions one and two, the second contrasting sessions one and three. The first analysis revealed a main effect of session $F(1,2)=12.12$, $p<.05$. The second analysis revealed a significant session-by-task interaction $F(1,2)=5.23$, $p<.05$. Post hoc analyses of the interaction (Tukey's HSD) established that only the read-as-the-reader group showed a significant gain between sessions one and three. A discourse analysis of the descriptions revealed that students used an "object-centered" discourse strategy that began with an analogy followed by geometric shape and spatial characterizations. The study offers evidence that "reading-as-the-reader" can help younger writers in considering the multiple functions of writing and the reciprocity between writers, readers, and written text.

It looks like a Goose:
Composing for the Informational Needs of Readers

INTRODUCTION

The following study focused on how fifth- and ninth-graders learned to take their readers' perspective as they described Tangrams (Chinese geometric puzzles) to other student readers. The writers were randomly assigned a "perspective-taking" condition that varied the amount of reader insight a writer would receive. Each writer was asked to describe a set of tangrams. The readers used the descriptions to select a "target-gram" from other similar-looking tangrams. The guiding question for this study was: Can "reading as the reader" help fifth- and ninth-grade writers' to compose descriptive writing consistent with their readers' informational needs?

Theoretical perspective

Writing for the informational needs of readers is a complex, social cognitive process (Fitzgerald, 1992; Kirsch & Roen, 1990; O'Keefe, & Delia, 1986; Rafoth & Rubin, 1988; Roen & Willey, 1988). Writers are faced with the private cognitive struggle of deciding what information to communicate and how to communicate it. In addition, writers must consider for whom their writing is intended. Social and cognitive processes are interwoven in the act of writing (Dyson & Freedman, 1991; Florio, 1979; Flower, 1994). In "the universe of reading and writing" (Fitzgerald, p. 338, 1992), readers, writers, and text create, and share an interactive context where feelings, knowledge, goals, skills, experience and conventions contribute to "the construction of negotiated meaning" (Flower, p. 53, 1994). Although, readers and writers may "share" a text, they can often have contrasting interpretations of that same text.

Traxler and Gernsbacher (1993) theorize that to successfully meet the informational needs of readers, writers must coordinate three mental representations: a representation of personal communicative intent (what do I want to say?), a representation of the text produced (what have I written?), and a representation of the readers' perspective (how will the reader interpret my writing?). Coordinating these three mental representations is a discourse-specific, social cognitive accomplishment (Britton, Burges, Martin, Mcleod, & Rosen, 1975; Berkenkotter, 1981; Kroll, 1984b; Rubin, 1984).

With minimal instruction young writers can learn to make referential revisions to a problematic text written by other writers (Beal, 1996). However, the biggest developmental hurdle for young writers is learning to focus on the literal meaning of their own writing. Research (Bereiter & Scardamalia 1987; Fitzgerald & Markham, 1987) demonstrated that when young writers are given explicit instruction in how to evaluate and revise problems in their own texts they can improve the textual quality (e.g., spelling, punctuation and sentence fluency) of their writing. Although experimental conditions that foster "comprehension monitoring" (Beal, 1996; Fitzgerald & Markham, 1987) and "knowledge-transforming" (Bereiter & Scardamalia, 1987) can help young

writers to differentiate their intended meaning (what do I want to say?) from the text they have created (what have I written?), it is not clear from the research literature (e.g., Frank, 1992) what conditions help young writers view their writing from the perspective of their readers in order to improve the communicative quality of their writing (how will the reader interpret my writing?).

The communicative quality of any piece of writing depends on a writer meeting the informational needs of a reader (Roen & Willey, 1988). Meeting the informational needs of the reader, however, can be problematic in writing; a writer receives no immediate feedback from the reader in the same way that a speaker receives feedback from a listener. To develop a representation of a reader's informational needs, a writer must think like a reader (Fitzgerald, 1992). Past research (Frank, 1992; Rafoth, 1985 and 1989; Roen & Willey, 1988) demonstrated that rereading for the informational needs of the "audience" during the revision process can be an effective instructional/learning strategy that leads writers to think like their readers and thus, to write from their readers' perspective.

Traxler and Gernsbacher (1993) found that university students' revision of descriptive writing improved after they went through a revision process that included "reading as the reader." Over three writing sessions, writers described tangrams (geometric Chinese puzzles) that would be read by other university students. After drafting descriptions in a first writing session, writers were randomly placed in one of two reading conditions: one group rated descriptions of tangrams in terms of informational adequacy (e.g., "how clear was the description?; "how much information did the picture contain?"), while the other group read descriptions of tangrams and then attempted to match the descriptions with a similar looking tangram (reading-as-the-reader). All writers then revised drafts of their original descriptions. Those who performed the readers' task in second and third writing sessions revised and wrote higher quality descriptions than those writers who simply rated descriptions. Reading-as-the-reader, Traxler and Gernsbacher argued, led these writers to develop a more accurate representation of the readers' needs than those writers who rated descriptions. By taking the role of the reader on a similarly produced text, these university student writers gained the experience needed to think like their readers and revise their descriptions consistent with their readers' informational needs.

All writers are faced with the challenge of understanding that the text they create and the meaning they intend to communicate can be interpreted differently by different readers (Olson, 1994). If consideration of the readers' needs is critical to "good thinking during composing" (Fitzgerald, 1992), then reading-as-the-reader may be one perspective-taking condition that helps young writers compose for the informational needs of their readers. Reading-as-the-reader may be one strategy whereby young writers can coordinate "what do I want to say?" and "what have I written?" with "how will the reader interpret my writing?"

Purpose of the study

Olson (1994) theorized that the development of competency in literacy is associated with understanding different interpretive perspectives. This would include learning to write from the

informational perspective of readers. Fitzgerald (1992) has concluded that "revision development moves from representations of ideas without attention to readers to more careful consideration of readers' needs" (p. 347). The conditions that might lead children to construct a representation of "the reader's perspective" is an area understudied in the writing development literature (see Frank, 1992; Beal, 1996; Cameroon, Hunt and Linton, 1996). The purpose of this study is to determine if "reading-as-the-reader" can help younger students write in accordance with their readers' informational needs.

Traxler and Gernsbacher (1992 and 1993) offered compelling, but limited evidence that has interesting implications for understanding writing development if similar evidence can be collected from younger writers. This study modified the referential communication design used by Traxler and Gernsbacher to investigate what perspective-taking conditions can help younger writers improve the communicative quality of their descriptive writing. The "minimal feedback," "rating other," and "reading-as-the-reader" conditions were manipulated to investigate how fifth- and ninth-grade writers compose for the informational needs of their readers.

These questions were investigated:

1) Can the perspective-taking strategy "reading-as-the reader" assist young writers in accurately meeting the informational needs of their readers?

2) Do both fifth- and ninth-grade writers respond to the perspective-taking conditions similarly or are there differences in the way that these writers respond to these conditions?

3) What are the discourse strategies that fifth-grade and ninth-graders writers use to meet the informational needs of their readers?

METHOD

Participants

The fifth-grade and ninth- grade participants for this study came from four school districts in the Seattle metropolitan area. All the writers were in regular language arts classes. All of the participating teachers reviewed the materials and the procedures, and made a judgment that their students would understand the task and participate without any difficulties.

There were two groups of participants. One group was the writers, the other group was the readers. There were 154 writers - 78 fifth-graders and 76 ninth-graders. The readers were a separate group of 52 ninth-grade readers in advanced placement English classes. There was a total of 206 participants.

Design

A written referential communicative paradigm adapted from Traxler and Gernsbacher (1992 and 1993) was used. There were three writing sessions and three reading sessions. Each writing and reading session was separated by a one week interval (see Table 1, p. 22).

Writers: There were three 30-35 minute writing sessions. In the first writing session all

writers were given a notebook with written instructions and three tangram figures to be described. Each tangram and writing space were provided on separate pages (see Figure 1, p. 25 for a sample page). In the second session, each writer received a typed version of their descriptions they composed in the first session. During this session writers were randomly assigned to one of three revision conditions:

Condition One (feedback only condition). Writers received a sentence for each description indicating whether their reader had successfully matched their description with the target-gram. Writers were then asked to make revisions to their original descriptions.

Condition Two (feedback + rating condition). Like condition one, all writers received a feedback sentence indicating whether the reader had successfully matched each description with the target-gram. Then, all writers in this condition received three descriptions written by another student. They were asked to rate the descriptions by considering the informational adequacy of each description. They were then asked to make revisions to their own original descriptions.

Condition Three (feedback + read-as-the-reader condition). Like conditions one and two, all writers received a feedback sentence indicating whether their reader had successfully matched each description with the target-gram. Then, all the writers in this condition were asked to read three descriptions written by another student and asked to match descriptions with tangrams (This is exactly what their readers did). They were then asked to revise their original descriptions.

In the third writing session, writers remained in the experimental condition that they were randomly assigned to in session two. During this session however, they were asked to describe a new set of three tangrams; writers composed new descriptions for tangrams they had not seen.

Readers: For the entirety of the experiment, each writer was scored by the same reader. Each reader read 9 tangram descriptions; three from each of three writers, each writer representing one of the three perspective conditions. For each description, readers saw four similar looking tangrams (see Figure 2, p. 26). At the bottom of each Readers' page the readers were asked to: Circle the tangram that description number X best describes. Readers decided which one of the four tangrams was described by the description. This reading process was repeated on three different reading sessions; once for the original draft descriptions from session 1, once for revised/rewritten descriptions from session 2, and once for the new descriptions written in session 3.

Materials

The stimulus materials consisted of 72 tangram figures (similar to those used by Traxler and Gernsbacher, 1992 and 1993; Clark and Wilkes-Gibbs, 1986; Schober and Clark, 1989). The tangrams were divided into 6 sets. Each set contained three separate groups of four similar looking tangrams.

Each writer received a notebook with a cover page of written instructions and three separate pages with one "Target-gram" that they described (again, see Figure 1, p. 25 for an example). If

additional writing space was needed, the writers were invited to continue on the back side of the page.

The readers received a notebook and a score book. The notebook contained 9 student descriptions that were typed by the researcher. In the score book the readers made their description-to-targetgram matches. The score book included a page of four similar-looking tangrams for each description . At the bottom of the page this sentence appeared: Circle the tangram that description number X best describes. For each description, the reader read the descriptions in the notebook, then, in the score book, circled the tangram they thought was best described by the description (see, Figure 2, p. 26).

Procedures for Writers

Writing Session One (Week one):

All writers were given a notebook with three Tangrams. Students were given 30 minutes to describe the three tangrams. There was a page of written instructions that students followed as the researcher read them aloud. These instructions were read aloud:

"You are given three tangram figures. As you can see, each tangram is located on a separate sheet of paper. (Are you familiar with Tangrams? Do you know the story of Tan?) Open to the first page of your booklet. Read along as I read the instructions aloud. Your task is to look at the tangram and describe it in writing the best way that you can. Please write at least five complete sentences, but write as many sentences as you think you need to be clear. Another student will read your descriptions and then try to find the tangrams that you have described from other similar-looking tangrams. You must include enough detail so that the reader can easily identify the figures you have described from other similar-looking tangrams. Each page has one figure and a space provided below where you can write your description. What are your questions?. Have fun!"

Writing Session Two (Week two):

In the second writing session, the participants were randomly assigned to one of three revision conditions. These conditions were as follows:

Condition 1: Feedback only.

Following Traxler and Gernsbacher (1992, p. 10), all writers in the feedback condition received their original descriptions in a typed form and a feedback sentence indicating whether the reader had successfully matched the description with the target-gram: "Your reader was successful in matching your description with the correct tangram" or "Your reader was not successful in matching this description with the correct tangram."

The writers were then asked to revise and/or rewrite their descriptions completely. These written instructions were given: "After considering the feedback from your reader, revise your descriptions entirely so that your reader can make more successful matches between your descriptions and the tangrams that you are describing." The writers were then asked to rewrite their descriptions anew to encourage them to make changes rather than submitting edits on the typed version.

Condition 2: Feedback + rating-others.

As with the first condition, all writers received a feedback sentence indicating whether the reader was successful in matching the description with the target-gram. Then, following Traxler and Gernsbacher (1993, p. 325 - 326), writers assigned to this condition were asked to read three tangram descriptions written by another student of the same grade. All participants in this condition read the same descriptions. For each description, these writers compared the descriptions, then rated the descriptions by answering these questions:

1) Circle which description you think is easiest to read:

Description 1, 2, or 3

2) Circle which description you think is more informative:

Description 1, 2, or 3

3) Circle which description creates a better picture in your mind:

Description 1, 2, or 3

4) What do you think the writer can do to improve the quality of his/her descriptions? Please write one sentence.

After the writers answered these questions they were given these written instructions: "You have read descriptions written by another student and compared different ideas about tangram descriptions. Reading these descriptions may help you write better so that another student can correctly match your descriptions with the tangrams. Please revise your descriptions entirely so that your reader can make more successful matches between your descriptions and the tangrams that you are describing." The writers were then asked to rewrite their descriptions anew to encourage them to make changes rather than submitting edits on the typed version.

Condition 3: Feedback + read-as-the-reader.

As with the first condition, all writers received a feedback sentence indicating whether their reader had successfully matched the description with the target-gram. Then, following Traxler and Gernsbacher (1993, p. 326), the writers in this condition received three descriptions written by another student of the same grade. They attempted to match correctly the description with the appropriate tangram. All participants in this condition read the same descriptions. They were given these written instructions: "Your task is to read each description, then find the tangram that matches best with each description. You may read all of the descriptions first and then try to match them by rereading the descriptions, or you can read each description first and then try the best-fitting description as you proceed through the descriptions. Either way is okay. At the bottom of each page of Tangrams you are asked to circle the tangram that you think is best described by the description: "Circle the tangram that is best described by description X."

After they completed their reading and matching task, these writers were given these instructions: "You have read descriptions written by another student and attempted to match the descriptions with the matching tangram. Reading these descriptions may help you write better so that another student can correctly match your descriptions with the tangrams. Please rewrite your descriptions entirely so that your readers can make more successful matches between your

descriptions and the tangrams that you are describing." The writers were asked to rewrite their descriptions anew to encourage them to make changes rather than submitting edits on the typed version.

Writing Session Three (Week three):

During the third writing session, all writers remained in the condition they were randomly assigned to in the second writing session. After they received the treatment, they were asked to describe three new tangrams.

Condition 1: Feedback only.

After these writers received their feedback, they received these instructions written in their notebook:

"Last week you revised your descriptions of tangrams. You have received feedback indicating whether your reader was successful in matching your descriptions with the tangrams that you described. This feedback may help you describe your tangrams more effectively. This week you are given three new tangrams to describe. You should use whatever insights you have gained to write new descriptions. Please remember, your task is to look at the figure and describe it in writing the best way that you can. Please write at least five complete sentences, but write as many sentences as you think you need to be clear. Another student will read your descriptions and then try to find the tangram that you have described from other similar looking figures. You must include enough detail so that the reader can easily identify your figures from other similar tangram figures. Each page has one figure and a space provided below where you can write your description. What are your questions? Have fun!"

Condition 2: Feedback + rating-others.

After these writers received feedback and rated another student's descriptions for their informational quality, they were given these written instructions in their notebooks:

"You have read three descriptions written by other authors in the same grade. You were asked to compare which descriptions were more informative and which ones were least informative. Last week you revised your original descriptions. Reading another writer's descriptions and then revising your own descriptions may have helped you gain some insight on what information is important for your readers. Please describe three new tangrams using whatever insights you have gained by reading other writers' descriptions. Please remember, your task is to look at the figure and describe it in writing the best way that you can. Please write at least five complete sentences, but write as many sentences as you think you need to be clear. Another student will read your descriptions and then try to find the tangram that you have described from other similar looking figures. You must include enough detail so that the reader can easily identify your figures from other similar tangram figures. Each page has one figure and a space provided below where you can write your description. What are your questions? Have fun!"

Condition 3: Feedback+ Reading -as -the -reader.

After these writers were given feedback and match descriptions with the appropriate tangrams, they were given these written instructions in their notebooks:

"You have read three descriptions written by another student and attempted to match their descriptions with tangrams. Last week you revised your original descriptions. Reading another writer's descriptions and then revising your own descriptions may have helped you gain some insight on what information is important for your readers. Please describe three new tangrams using whatever insights you have gained by reading other writers' descriptions. Please remember, your task is to look at the figure and describe it in writing the best way that you can. Please write at least five complete sentences, but write as many sentences as you think you need to be clear. Another student will read your descriptions and then try to find the tangram that you have described from other similar looking figures. You must include enough detail so that the reader can easily identify your figures from other similar tangram figures. Each page has one figure and a space provided below where you can write your description. What are your questions? Have fun!

Procedure for Readers

All weekly reading sessions followed the same procedures. (see Table 1, p. 22 for weekly sequences.) For each of the three reading sessions, the following instructions were written in the readers' notebooks and given orally:

"There are two things I would like you to help me do:

1) You have two note books. In this notebook you are given 9 written descriptions of geometric figures called Tangrams. (Are you familiar with Tangrams? Do you know the story of Tan?) Each description is numbered starting with one (1) and ending with nine (9). In this second note book, the score book, there are 3 pages of four similar-looking Tangrams for each writer. There are a total of 9 pages of tangrams."

"Your task is to read each description, then find the tangram that matches best with each description. You may read all of the descriptions first and then try to match them by rereading the descriptions, or you can read each description first and then try the best-fitting description as you proceed through the descriptions. Either way is okay. At the bottom of each page of Tangrams there is a simple sentence that reads: Circle the tangram that is best described by description X. For each description, there is one, and only one, tangram that matches with the description. What are your questions?"

2) "When you finish reading the descriptions please close the description booklet. On the last page of the score booklet there is a page where you can write your suggestions or comments about the descriptions you just read. Please write three comments to the authors that you think would help you make the match between the description and the Tangram easier. What specifically would help you to identify certain tangrams? Are there specific details? What wording do you think was most effective and least effective in helping you read? "

This entire process was repeated at each scoring session.

Results

Quantitative analysis

Table 2 (p. 23) shows the mean scores by by session,by grade, and by perspective

condition. Two analysis of variance (ANOVAs) were conducted, the first contrasting Session 1 with Session 2, and the second contrasting Session 1 with Session 3. Because Session 2 involved revision of existing drafts and Session 3 involved composing new drafts, the task requirements were sufficiently different to warrant separate analyses.

The results of the 2 (Grade) x 2 (Session) x 3 (Task) ANOVA comparing Session 1 with Session 2 (the "revision comparison") are summarized in Table 3 (p. 24). The ANOVA revealed a significant main effect of Grade, with the 9th-grade texts yielding more matches, on average, than the 5th-grade texts ($\underline{M}$=2.04 vs. $\underline{M}$=1.74). The main effect of Task and the Grade-by-Task interaction were not significant. The Revision comparison revealed a significant main effect of Session, writers' mean score improving from Session 1 to Session 2 ($\underline{M}$=1.89 vs. $\underline{M}$=2.23), but there were no significant interactions involving Session.

The results of the 2 (Grade) x 2 (Session) x 3 (Task) ANOVA comparing Session 1 with Session 3 (the "transfer comparison") are summarized in Table 4 (p. 24). This ANOVA also revealed a significant main effect of Grade, with the 9th-grade texts again prompting, on average, more matches than the 5th- grade texts ($\underline{M}$=2.39 vs. $\underline{M}$=2.07). Again, the main effect of Task and the Grade-by-Task interaction were not significant. The Transfer comparison also revealed a significant main effect of Session; however, that main effect was compromised by a significant Session-by-Task interaction. Post-hoc analyses of the interaction (Tukey's HSD) established that only the Read-as-the-reader group showed significant gain from session 1 to Session 3.

The first question guiding this research was: Can the perspective-taking strategy "reading as the reader" help younger writers to meet the informational needs of their readers? Although student scores generally improved from session 1 to session 2 in the revision comparison, the improvement was statistically consistent across all three Task conditions. That is, familiarity with the writing tasks in general, rather than the specific perspective task, may have contributed to the increase in scores. However, the Transfer comparison indicated that students were aided most from session 1 to session 3 by the read-as-the-reader task. Both 5th- and 9th-grade students in the read-as-the-reader condition improved from session 1 to session 3. This result suggests that the read-as-the reader strategy can help younger writers to meet their readers' informational needs, at least with several exposures to the strategy and when the task requires writing a new text (rather than revision). Reading-as-the-reader can assist younger writers in meeting their readers' informational needs.

The second research question guiding this research was: Do both fifth- and ninth-grade writer respond similarly to the perspective-taking strategies? Although both the revision comparison and the writing transfer comparison revealed that the 9th-grade writers wrote more effective texts than the 5th-graders (i.e., main effect of grade), neither comparison indicated a Grade-by-Task-by-Session interaction. That is, both age groups generally improved from session 1 to session 2, and both age groups showed larger gains in the read-as-the reader condition from session 1 to session 3. Thus, there is no evidence that the two groups differed in their response to the perspective taking strategies.

Qualitative analysis

To answer the third research questions a detailed discourse analysis was conducted to investigate the third research questions: What are the discourse strategies that fifth- and ninth-grade writers use to meet the informational needs of their readers?

Two interraters (two fifth-grade teachers unfamiliar with the study) rated 12 writers that were randomly chosen from the large corpus of descriptions. There were a total of 154 writers in this study; twelve writers (2 grades x 3 conditions x 2 writers in each condition) provided a minimal representation of both grade levels and the three task conditions. Each rater coded the same 108 descriptions (12 writers x 3 descriptions x 3 sessions). The coding of the descriptions was adapted from Schober (1993). This linguistic analysis focuses on the spatial perspective and conceptual perspective systems that differentiate between "writer-centered", "reader-centered", and "object-centered" descriptions.

The raters were asked to code using four categories: spatial orientation (shape, hand orientation, and locative distinctions including up/down, top/bottom, front/back,) pronominal reference (indicating writer- or reader-centeredness by the use of I, me, mine, you, your, and/or our), descriptive strategy (clueless, analogical, technical, balanced, and descriptive haiku), and mental picture (a five point scale ranging from very unclear to very clear).

The results indicate that writers have a strong preference for intrinsic, object-oriented language in their spatial descriptions of tangrams. There were very few personal pronouns used (I, me, mine, you, your, our) that would indicate writer- or reader-centeredness; in the descriptions coded, very little reference is made to the writer's or the reader's perceptual point of view. Few writers consistently used phrases like "on my right", "to your left", "from your right", "on our right" etc. Most of the descriptions focused on the internal appearance of the tangram; "It has a triangle cut out from its back"; "Its feet are two triangles and its head is facing up"; "The head points to the left and the tail points to the right." Conceptually, almost all the descriptions began with a analogical descriptive strategy. For example "It looks like a goose", "this figure looks like a man running", or "It looks like a duck with a long zig-zagging nose." Raters had a high degree of agreement on the spatial orientation counts (82.8%) and pronominal reference categories (97.2%), but a mild agreement on the descriptive strategy (50.1%) and mental picture ratings (37.6%).

Both fifth- and ninth-graders tend to respond to the task in a similar fashion by following a common descriptive schemata: "I'll use an analogy to start my description, then I'll characterize the analogy by including some shape names, sizes of shapes, and/or the positioning of the shapes in relation to each other and to the overall appearance of the tangram that I am describing." From this limited discourse analysis there is not a discernible descriptive strategy related to grade or experimental condition.

Discussion

Evidence for the interpretation and the use of "reading-as-the-reader"

In the Traxler and Gernsbacher studies (1992 and 1993), college freshman benefited from a

"reading-as-the-reader" condition. The literature in the development of perspective-taking in writing (e.g., Beal, 1996; Frank, 1992; Kroll, 1985), suggests that fifth-graders would not yet be as developmentally prepared in writing ability to meet their readers' informational needs as accurately as the ninth-graders. Unexpectedly, both the ninth and the fifth-graders received a social cognitive boost that facilitated their describing "target-grams" for their readers. This is encouraging. It suggests that the "read-as-the-reader" condition can help younger writers to "decenter" from the text they are composing in addition to helping them view their text from their readers' perspective.

The greatest improvement in matching scores occurred between sessions 1 and 3. In the second session (the "revision session"), perhaps writers were under the influence of the text they have already created; the actual physical text that was typed out for them constrained the creation of a new text fresh with detail. Bereiter and Scardamalia (1987) suggest that "the original version of text, because it is perceptually present, has a direct claim on conscious attention. Unless the writer can deliberately bring alternatives to mind, the original text will win for lack of competition" (p. 87). Reading-as-the reader had the greatest impact when students were given a chance to transfer what they have learned in composing one set of texts to the composition of similar, but new texts. In the third session, writers were asked to describe a new set of tangrams. The Transfer-by-Task interaction revealed that in the third session both ninth- and fifth-grade writers benefited from working on a newly created text.

Reading-as-the-reader seems to help students activate relevant knowledge they already have (or have recently acquired) by doing what their readers do; they read descriptions then tried to match them with a "target-gram." This process gives the students experience with a text and the experience contrasting several similar-looking tangrams. This selection process offers an explicit insight into the nature and the complexity of the task that their readers are preforming. Reading-as-the-reader helps in gaining conscious access to linguistic and knowledge resources already available to the writer (see Bereiter and Scardamalia, 1987, p. 87). The reading of a text similar to the ones they were writing, gave the "read-as-the-reader" students the necessary reading experience that helped them in considering "how will the reader interpret my writing?"

Consistent with the Traxler and Gernsbacher studies (1993), the read-as-the-reader perspective-taking condition encouraged writers to develop a representation of their readers' needs by becoming readers themselves. Traxler and Gernsbacher concluded that "(a)fter they experienced their readers' task, the writers were able to assess more accurately how their revision choices would ultimately affect their readers, because their representations of how readers interpret their texts more closely resembled their readers' actual interpretations" (p. 330). Revision for the students in this study was based not on an already existing text, but in the information they had available to build representations. This representation building ability allows the writer to compose as if they too were readers. Theoretically, read-as-the reader is one path whereby students can learn to negotiate the "universe of reading and writing" (Fitzgerald, 1992).

I turn now to some additional evidence that can support the interpretation and the use of

"reading-as-the-reader." In the final writing session after the students had finished their descriptions, all writers were encouraged to respond freely in writing about the composing they had done during this experiment over the last three weeks. Many students responded positively to the writing task and to receiving feedback from for an unknown reader. The comments reflect the different struggles, strategies, and the revelations that fifth- and ninth-graders experienced while composing tangram descriptions. In addition, the reflections reveal that the writers interpreted the task similarly to the way that it was intended to be interpreted. A few examples here contrast different experiences and insights that students had under the three perspective-taking conditions:

5th-grader, Feed Back condition:

It was fun! But one thing I didn't get to read others and choose the shape they saw. I really wanted to, other wise I had lots of fun.

5th-grader, Rate-other condition:

It was fun describing tangrams. I like to read the other kids' descriptions because sometimes if I read other kids descriptions I can get some more ideas. Sometimes when I don't feel well reading feels boring to me but when I am happy reading feels happy to me.

5th- grader, Read-as-the-reader condition:

I thought this was very fun. My favorite was choosing which one other people were describing. It was also fun getting feedback and writing our won [sic]. It was more fun then boring. I learned that it is easier to write what it looks like instead of what it has on it, and it also works better.

5th-grader, Read-as-the-reader condition:

I liked this writing activity. I didn't really like describing the tangrams because I just don't like to describe things and not know if people get what I'm saying. But the part I liked most was reading other peoples descriptions. It made me feel better about my writing when I read and thought "what the heck are they talking about?" I felt like I wasn't the worst tangram describer afterall [sic].

5th-grader, Read-as-the-reader condition:

This writing activity was a good experience for me because I got to see how other people than us writes and think. It helped me when I was writing my second set of tangrams because what they wrote gave me ideas. The feedback was also helpful because I knew when I had to change stuff to make things clearer. I had fun with this writing activity.

Although the ninth-graders did not show in statistical terms the social cognitive boost from the "read-as-the-reader" perspective-taking condition that the fifth-graders received, their comments offer insight into the types of creative struggles, and their understandings about the reader/writer reciprocity that they gleaned while writing for the informational needs of their readers.

9th-grader, Feed Back condition:

I liked doing this but I would like it better if we got to look at other peoples descriptions

and guess tangrams.

9th-grader, Feed Back condition:

I liked doing this tangram thing. It was well organized. I really enjoyed the part about where tangrams came from. Some of the tangrams were really difficult to describe because if I thought it was a duck, someone else might think it was a dog. I would have liked to have someone elses [sic] descriptions and matched them. I think that everyone should have done both describe and read. Overall, I had fun. Thank you for coming.

9th-grader, Feed Back condition:

I thought this was a pretty fun activity except I wanted to be able to match other people's descriptions with their pictures.

9th-grader, Rate-other condition:

I think that as a writer I should be more specific and detailed. I shouldn't make my writing so dull, maybe I should put more excitement into it. As far as the tangram experience, I thought it was really cool. I was happy to see that my tangrams were successfully matched. Although some were not, I feel if I was more descriptive that could possible for the person to solve my tangram. I think that now that I know what I've done wrong in my writing I feel that I could do it perfect now. I will then be a professional tangram writer?!

9th-grader, Rate-other condition:

This was a very difficult task. It made me stretch my thinking. I had to think that not everyone thinks alike and so I had to try different describing methods. I found that the people who read mine had it easier if I have an idea of what it looked like then described the shapes that made it up.

9th-grader, Read-as-the-reader condition:

I think that describing the tangrams got easier as you went along. At first you didn't know how much each tangram look liked the others. When I matched descriptions with the pictures it made it easier to describe the tangrams then because I knew what was helpful to the reader and what was not.

Many of the comments reveal the potential motivating force this "tangram exercise" can have for students in descriptive writing. The students who did get to read from another students descriptions responded in various ways that this experience gave them insight to how a reader might respond to their writing. In many cases, those students who wrote under the "feed back only" condition commented that they would have benefited from reading other students' descriptions ("I think that everyone should have done both describe and read"). Developing a self-questioning strategy (i.e., "what the heck are they talking about?") and learning about the readers' procedural knowledge ("I learned that it is easier to write what it looks like instead of what it has on it, and it also works better") may have helped theses writers to develop a representation of their readers needs by questioning "how will the reader interpret my writing?"

Recognizing that text is only a representation of meaning and not absolute meaning is a big step for many young writers; comments from the students demonstrated that this distancing from

one's own text and clarifying one's communicative intent can be accomplished if one is asked to consider the informational needs of their readers. As a whole, the comments provide insight into how individual students responded to the different task conditions and the different struggles and epiphanies they had while describing tangrams. With the writers' reflection comments, we have especially encouraging evidence of the motivational benefits that reading-as-the-reader can offer students struggling to learn the reciprocity between readers, writers and written text.

What are the readers needs anyway?
The Readers' Needs Profile and Spatial relational language

Missing from the original research on which I based this study (Traxler & Gernsbacher ,1992 and 1993) was a detailed discourse analysis on the descriptions as they were written under each of the three experimental conditions. I wondered what it is in the descriptions that moves readers to chose one "target-gram" over another. I was interested in the "text-creating strategies" (Rubin, 1984) the writers used that influenced the decisions that their readers made as they matched descriptions with the target-grams. A text-creating strategy characterizes the ideas, choice of words, phrases, and sentences that a writer uses to help their readers' envision their descriptions. To understand the text creating strategies that the writers used, I conducted a detailed discourse analysis. The purpose of the discourse analysis was to investigate whether a particular perspective-taking condition (feed back, rate-other, and read-as-the-reader) influenced the structuring of students' written descriptions.

A key component of the analysis was the construction of A Readers' Needs Profile based on an analysis of the readers' comments they made after each writing session. The profile is a composite of repeated themes that readers made throughout each session. After reading the descriptions and matching the description with a target-gram, all readers provided three comments (of varying lengths) that might improve the quality of the descriptions.The readers' written responses provided numerous insights into what the readers needed to successfully match the descriptions with the target-grams.

Most striking from the profile is the readers' need for language that clarifies spatial orientation and directional orientation. Many of the readers' responses asked for clarity in basic spatial terminology like left/right, top/bottom, front/ back, next to, on top of, underneath, etc. From the numerous comments I arrived at a compilation of "the readers' needs" for this particular referential reading task.

In short, the readers need some sort of an analogy to establish a common ground for comprehension, and then, spatial and intrinsic elaborations on the shapes and the orientation of those shapes in relation to the overall analogical image. Many readers had similar needs; they needed a global conceptual image created by the analogy with just enough local shape and spatial elaborations that lead them to chose one a particular target-gram from a group of similar-looking tangrams. The readers' needs profile was an extremely helpful tool in understanding what it was that the readers needed to accurately match the descriptions with the target-grams.

The readers in this study came from two classes of advanced placement ninth-graders; they were sagacious readers (and writers) that clearly articulated the critical information they needed as readers. The "readers' needs profile" helped in establishing the criteria used to analyze the text-creating strategies that the writers used in their descriptions. The readers' needs profile specified that the language of spatial orientation was crucial to interpret the student descriptions of tangrams.

The inter-raters coded 108 descriptions by using the spatial orientation categories suggested by Schober (1993). There were no discernible differences in text-creating strategies and the way spatial orientation language was used between the three perspective-taking conditions. From this analysis it is not clear why readers matched the "target-grams" with specific descriptions. The connection between the perspective-taking condition, the discourse structuring, and the matching selection that the readers made is not easy to make based on this analysis.

From the analysis it was clear, however, that all writers discovered a certain general descriptive strategy that usually began with or included an analogy followed by shape designation within the analogized tangram. As Taylor and Tversky (1996) suggest from there studies of various map descriptions, the analogy seems to serve as a conceptual global organizer, with other shape and spatial descriptions serving a more local perspective on the the interior parts of the tangrams.

Reading-as-the-reader: Contributions to and implications for further research

Beal (1996) states "an implicit goal for future research will be to analyze the precise contributions of various writing situations to develop childrens' emerging ability to review and revise their work" (p. 235). This study clarifies one precise writing task that can assist children in developing the ability to write, review, and revise from their reader's point of view.

Taking the readers' point of view is fundamental to revision; "To revise is to reflect on the text as an object that is once part of the writer and at the same time an autonomous entity" (Rubin and O'Looney, 1990. p. 281). Reading-as-the-reader offers a specific opportunity for young writers to step back ("decenter") from their text and see it as a representation of meaning. The students' reflective comments revealed that when they read another student's descriptions and then attempted to match them with a target-gram, that this process contributed to their understanding that other readers might see their writing differently than they intended.

By taking the perspective of their readers, younger writers can expand their knowledge and representational ability to include more diagnose/revise strategies. Although "reading-as-the-reader" is not a process taught explicitly like "comprehension monitoring" and "procedural facilitations" it led these fifth-graders to distinguish their communicative descriptive intentions for text from possible divergent interpretations of that same text. The detect/rewrite - diagnose/revise continuum represents a range of possible revision strategies available to a writer. Perhaps students can transfer their reading-as-the-reader experience to consider the kind of information that can remain implicit and what information needs to be explicitly specified. Reading-as-the-reader clarifies a situation whereby younger writers can learn to write, review, and revise their writing

from the perspective of their readers.

Could similar results be obtained with writing that accomplishes different functions? If "reading-as-the-reader" is a strategy that worked for younger kids in helping them develop a readers' perspective in transactional writing, I might ask: Is this a skill (reading-as-the-reader) transferable to other types of writing functions? Transactional writing is "information heavy." That is, the readers' response is limited to a specified perceptual visual context; literary interpretations and rich imagistic responses from expressive and poetic writing may not be as susceptible to this kind of a dependent measure of "the readers' perspective."

Descriptive writing is one path whereby students can demonstrate their understanding of particular works of art. In one assessment approach to art work formal (elements of design, media and technique), interpretive (meaning, emotion, and expression), historical (names, dates, information regarding the artist), and descriptive (objects and subject matter) dimensions are assessed through the analysis of written responses (Stavropoulos, 1997).

Another question for further research is: what are the decisions that writers make as the consider their readers' informational needs? Messick (1989) suggests, one way to do this is to "directly probe the ways in which individuals cope with the items or task, in an effort to illuminate the processes that underlay item response and task performance" (p. 6, 1989). To a limited extent, the writers' reflective comments and the readers comments provide a glimpse of the ways that students cope with describing tangrams. The next step would be to directly chart students thoughts as they compose by conducting protocol analysis studies whereby students would be asked to think aloud as they composed tangram descriptions.

Unexpectedly, the fifth-graders in this study benefited most from the reading-as-the-reader condition. The students' reflective comments suggest that reading another student's descriptions and then matching them with target-grams was a motivational push and an awareness boosting process for the students in this study. Could younger students in second, third, and fourth grades also receive the social cognitive boost that the fifth-graders did? Further research in the development of "reading-as-the-reader" might also contribute to our understanding of specific pedagogical situations that would assist young writers to consider "how will the reader interpret my writing?"

Describing Tangrams: Implications for writing teachers

This study offers empirical support for the widespread classroom practice of peer editing and peer response. This study suggests, however, that peer response may be more effective when peers actually use the text in some way, because they are forced to confront the text's strengths and weaknesses in a concrete context, rather than the more abstract context of giving literary feedback. In addition, this research contributes to a body of literature (e.g., Beal, 1996; Cameroon, Hunt, & Linton, 1996; Frank, 1992; Oliver, 1995) that clarifies some of the instructional and classroom conditions that can help young writers envision how their readers' interpret the text they have written. Specifically, it contributes to our understanding of how younger writers can learn of the

reciprocity between writing, reading, and text (see Flower, 1994; Nystrand, 1990; Witte, 1992). On a rational basis I see at least three instructional implications:

1) The writing task used in this study can be added to a teacher's repertoire of "optimal environmental activities" (Daniles, 1990, pp. 118-121). Daniles describes a written activity where a pile of potatoes is placed in the center of the room. Students choose one potato and describe it in writing in as much detail as they can. The potatoes and descriptions are then mixed, and students randomly choose one description then attempt to match the description with the correct potato. Daniles suggests that "lessons about effective descriptive writing emerge from experiencing strategies in use" (p. 119). "Reading as the reader" is a perspective-taking strategy experienced in use where the writer attempts to create a perceptual perspective their readers can "see."

2) "Reading as the Reader" is one perspective-taking condition that can be added to a "writer's tool box" (Harper, 1997). Harper describes five revision tools that she suggests have worked for her as a practicing middle school writing teacher. One revision tool she suggests to include in the "writer's tool box" is "snapshots" (Harper, 1997, p. 195). "Snapshots" is a writing activity where students are asked to focus on only the physical details of an object, scene, or situation; students take a written snapshot similar to a detailed photographic snapshot. Snapshots force students to "focus on close, physical detail" without relying on subjective thoughts and/or feelings. "Reading as the reader" is one more tool that that can help kids become more efficient descriptive writers.

3) Referential, transactional descriptive writing is but one specific function writing can serve. Learning to meet the informational needs of a reader may lead students to consider other assumptions about their writing and the readers' engagement with it. Learning to make details explicit and "read as the reader" may assist students in recognizing other text creating approaches that could be used with other functions of writing. For example, composing concrete poems and descriptive essays while "reading as the reader" are classroom experiences that can facilitate students going beyond their immediate personal and social circumstance (Cameroon, Hunt, & Linton, 1996; Elasasser & John Steiner, 1977; Florio, 1979).

Conclusion

Bruner (1996) suggests that any theory of learning must include perspectivability. The first tenet to Bruner's cultural psychological approach to education is "the perspectival tenet." This precept states "to understand well what something 'means' requires some awareness of the alternative meanings that can be attached to the matter under scrutiny" (p. 13). Similarly, Olson (1994) suggests that understanding that other people have different experiential perspectives is tantamount to becoming literate; distinguishing the "said" from the "intended" requires a perspective on the reciprocity between reader, writer, and written text that is challenging even for experienced writers and readers. Reading-as-the-reader may assist young writers in taking a small step towards the literacy of perspectivability.

The students in the read-as-the-reader perspective were able to articulate the unique

characteristics of their tangrams that enabled their reader to make accurate judgments based on their descriptions. Not only were these writers better able to coordinate "what do I want to say?" and "what have I written?", they also learned to consider "how will the reader interpret my writing?" In collaboration with a dynamic classroom where writing is done frequently and for many purposes, reading-as-the-reader may help young writers to consider multiple functions their writing can serve and enhance their perspectivability on the reciprocity between writer, reader, and written text.

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Table 1

Sequence of Weekly Experimental Sessions for Writers and Readers

Weekly Sessions

	Writers	Readers
Week 1	Writers are given first notebook of three target-grams to be described.	Readers read descriptions (three descriptions from three different writers) and make description to target-gram matches.
Week 2	Writers are randomly assigned to either feedback, rating-other or read-as-the-reader condition. After task is performed, all writers revise original descriptions.	Readers read and make new description--to-target-gram matches.
Week 3	Students remain in previous perspective-taking condition, perform task, and then describe a new group of three target-grams.	Readers read new descriptions and make target-gram matches

Table 2

Means and Standard Deviations by Session, Condition, and Grade

	Session 1			Session 2			Session 3		
	N	M	SD	N	M	SD	N	M	SD
Condition									
Feed Back									
Grade 9	18	2.16	.923	18	2.38	.849	18	2.27	.958
Grade 5	25	1.80	.763	25	2.20	.763	25	1.68	.945
Read-Other									
Grade 9	26	2.23	.764	26	2.42	.757	26	2.42	.702
Grade 5	30	1.86	1.04	30	2.00	.946	30	2.27	.868
Read-as-Reader									
Grade 9	32	1.75	.879	32	2.28	.851	32	2.50	.672
Grade 5	23	1.57	.589	23	2.13	1.01	23	2.26	.688

Table 3

Analysis of Variance Summary of Session 1 to Session 2 (Revision Comparison)

Source of Variance	SS	df	MS	F	sig
Grade	5.603	1	5.603	7.190	.008
Task	3.052	2	1.526	1.958	.145
Grade x Task	.796	2	.398	.510	.601
Error	115.333	148			
Session	8.370	1	8.370	12.129	.001
Session x Grade	6.994	1	6.994	1.01	.751
Session x Task	1.883	2	.941	1.364	.259
Session x Grade x Task	.170	2	.848	.123	.884
Error	102.134	148			

Table 4

Analysis of Variance Summary of Session 1 to Session 3 (Transfer Comparison)

Source of Variance	SS	df	MS	F	sig
Grade	7.282	1	7.282	9.338	.003
Task	2.822	2	1.411	1.810	.167
Grade x Task	1.027	2	.513	.658	.519
Error	115.404	148			
Session	8.244	1	8.244	14.105	.000
Session x Grade	4.469	1	4.469	.008	.930
Session x Task	6.120	2	3.060	5.235	.006
Session x Grade x Task	.583	2	.292	.499	.608
Error	86.497	148			

Figure 1

A Sample Page with Target-gram to be Described by Writer

Figure 2

Tangrams Seen by The Reader Including Three Distractor-grams (figures A, B, and D) and One Target-gram (figure C) Described by The Writer

Figure A

Figure B

Figure C

Figure D

Circle the Tangram that is Best described by Description 1.